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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/519,330 | 03/06/2000 | Radislav Alexandrovich Potyrailo | RD-27,768 | 8826 |

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| EXAMINER |
|---|
| COLE, MONIQUE T |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1743 | |

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application N . | Applicant(s) | |
|---|---|---|---|
| | 09/519,330 | POTYRAILO ET AL. | |
| | Examiner | Art Unit | |
| | Monique T. Cole | 1743 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 January 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) *22-36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21, 37-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, 4, 5, 12, 13, 16-20, 37, 38, 39, 41, 43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by "Development of an Electronic Nose" by Barisci et al. (herein referred to as "Barisci").

Barisci teaches a system for detection of volatile compounds which relies on a change in electrical resistance that occurs when a conducting polymer sensing element is exposed to a gaseous sample. Analyte vapors are generated by bubbling a nitrogen gas stream through a volatile liquid. A continuous flow of saturated gas is produced with the vapor concentration being related to the vapor pressure of the liquid. The stream is directed to a sensor array of up to eight sensors (page 169). The detection system comprises an array of sensors, hardware and a computer that facilitates the analysis and quantification of the volatile material (page 164).

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 14, 15 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barisci.

6. Barisci does not explicitly teach the rate of delivery of the inert carrier gas. However, where the general conditions of the claim are taught in the prior art, it is not considered inventive to discover the optimum or workable ranges. In this case, it would have been obvious to one having ordinary skill in the art to use any flow rate of gas that would have effectively allowed the sensors to quantify the different analytes present in the flow stream.

7. Claims 2, 6-11, 21, 42 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barisci in view of USP 6,438,497 to Mansky et al. (herein referred to as "Mansky").

Barisci differs from the instantly claimed invention in that it does not disclose that the sensor element is a quartz crystal. However, Mansky teaches a method for conducting sensor array-based rapid materials characterization that may employ various sensor substrates including

quartz or polymer sheets (col. 7, lines 5-21). Polymer substrates such as polyimides, polytetrafluoroethylene and the like may be used. Thus, this reference sets forth the functional equivalency of various sensor substrates. It would have been obvious to one having ordinary skill in the art to employ any of the taught sensor substrates with the reasonable expectation of creating a useful sensor array for chemical detection.

Barisci further differs from the instantly claimed invention in that it does not teach that the sensor element is optical. However, Mansky teaches that optical sensing devices may be used within the sensor array. Thus, it would have been obvious to one having ordinary skill in the art to modify Barisci by including optical sensor element to facilitate the rapid material characterization of the volatile substances.

*Response to Arguments*

Applicant's remarks submitted on 1/23/2003 have been considered but are not deemed to be persuasive. With regard to the pending rejections, all of Applicant's rebuttals are premised on a discussion of Barisci et al., thus the Examiner's remarks concerning the reference should address all of Applicant's points.

Applicant has argued that the method of the present invention differs significantly from those disclosed in Barisci et al. because no temporal factors are utilized. Applicant has stated that the present invention comprises each component of the sample volatizing at a different rate, each being exposed to a single sensor utilized at a different time, thereby analyzing the signals as a function of time & Barisci et al. utilizes an array of sensors simultaneously with no consideration of time.

However, the Barisci et al. reference does not require the presence of a sensor array, exemplified by the language "may accommodate and monitor up to eight sensors" just as Applicant's broad claims do not require the presence of a sensor array. Further, Barisci et al. does measure each component of the sample volatizing at a different rate as a function of time (see Figure 4) thus comporting to the instant claims' requirement of "temporally-determined variation in the concentration." Applicant should note that the instant claims do not require that each component be exposed to the single sensor utilized at a different time.

*Conclusion*

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique T. Cole whose telephone number is 703-305-0447. The examiner can normally be reached on Monday-Thursday from 6:30 A.M. to 4:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 703-308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-5408 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0661.

Monique T. Cole
Examiner
Art Unit 1743

MC/MC
March 26, 2003

Jill Warden
Supervisory Patent Examiner
Technology Center 1700